

What is claimed is:

1. A hair braider configured to perform a three-bundle plait or braid comprising:

a body having a handle and a head portion at one end of the handle;

a selectively actuatable drive source disposed within the body;

first and second rotatable rotors that are disposed within the head portion and are accessible through openings formed in the head portion, the first and second rotatable rotors being operatively coupled to the drive source through a plurality of gears such that the first and second rotors rotate in opposite directions when the drive source is actuated;

a plurality of hair retaining members that are received within openings formed through the first and second rotatable rotors, each hair retaining member having a bore formed therethrough for receiving one bundle of hair; and

a mechanism for transferring at a transfer location one hair retaining member from one rotor to the other rotor as the rotors rotate, wherein the initial arrangement of the hair retaining members within the openings, the rotation of the rotors in opposite directions and the successive transfer of one hair retaining member from one rotor to the other rotor results in a true, three-bundle braid being formed.

2. The hair braider of claim 1, wherein the openings formed in the head portion comprise a first opening formed in an upper face thereof and a second opening formed in an opposing lower face thereof, the first and second openings being aligned with one another so as to permit the bundles of hair to be received in and extend completely through the head portion while also permitting the bundles of hair to be rotated within the head portion and transferred from the one rotor to the other rotor.

3. The hair braider of claim 2, wherein each of the first and second openings has a first substantially circular section that is adjacent the first rotor and a second substantially circular section that is adjacent the second rotor.

4. The hair braider of claim 1, wherein the head portion is formed of an upper body section and a lower body section that are coupled to one another and secured to one another by fasteners or by a snap-fit arrangement.

5. The hair braider of claim 1, wherein the drive source comprises a motor that is coupled to a gear box that includes a drive shaft and a main drive gear formed at the end of the drive shaft, wherein rotation of the drive gear in one direction is transferred through the plurality of gears into rotation of the rotors in opposite directions.

6. The hair braider of claim 5, wherein the drive gear is disposed at an angle relative to the other gears that are operatively coupled to the first and second rotors.

7. The hair braider of claim 5, wherein teeth of the drive gear intermesh with complementary teeth of a first idler gear which also intermeshes with teeth of the first rotor to cause rotation in a first direction, the teeth of the first idler gear also intermeshing with teeth of a second idler gear which also intermeshes with teeth of the second rotor to cause rotation in a second direction.

8. The hair braider of claim 1, wherein each hair retaining member is formed of a cylindrical post that has the bore formed therethrough for receiving one bundle of hair and a hair threader that is removably received through the bore after the bundle of hair is arranged relative to and carried by the threader.

9. The hair braider of claim 8, wherein the cylindrical post has a cylindrical body that includes the bore and a pair of flanges formed at and extending outwardly from ends of the cylindrical body.

10. The hair braider of claim 9, wherein a lowermost flange includes a lip that is formed around a perimeter edge of the flange.

11. The hair braider of claim 10, further including an elastic ring-shaped member that is received and retained within the lip against an underside of the lowermost flange.

12. The hair braider of claim 11, wherein the ring-shaped member is formed of an elastic, flexible rubber material.

13. The hair braider of claim 8, wherein the hair threader is formed of a threader head and an elongated tube member that is securely coupled to and extends outwardly from the threader head, the tube member having a diameter that is less than a diameter of the bore formed in the cylindrical post to permit the tube member to be received through the cylindrical post.

14. The hair braider of claim 13, wherein the threader head has a bore extending therethrough for receiving one bundle of hair with a channel being formed in the head from an outer edge to the bore so that the bundle of hair can be introduced to the bore through the channel.

15. The hair braider of claim 13, wherein the elongated tube member includes a first cut out formed at a first end of the tube member and a second cut formed at a second end which is formed of a split finger construction.

16. The hair braider of claim 15, wherein a channel is formed between the split fingers, one end of the channel forming an entrance to an opening that is configured to receive the bundle of hair.

17. The hair braider of claim 13, wherein the elongated tube member includes a flat formed therealong from one end of the first end to the second end thereof.

18. The hair braider of claim 16, wherein during operation thereof, one bundle of hair is fed first through the channel in the threader head into the bore of the threader head and then out through the first cut-out and along an outer surface of the elongated tube member to the split finger construction where the hair is fed between the split finger into the second cut out and then up along the outer surface of the elongated tube member.

19. The hair braider of claim 1, wherein each of the first and second rotors is formed of two parts that releasably engage one another, a first part being formed of three concentric discs stacked on top of one another and a second part being formed of a disc, the first and second parts being spaced apart from one another by a spacer, the first and second parts having notches formed therein that are aligned with one another to form the openings formed in the respective rotor.

20. The hair braider of claim 19, wherein the first and second rotors at least partially intermesh with one another with two of the concentric discs of the first part of one rotor being disposed between the first and second parts of the other rotor.

21. The hair braider of claim 19, wherein the first and second rotors at least partially intermesh with one another and one concentric disc of the first part that is free of notches of one rotor lies in the same plane as the disc of the second part of the adjacent other rotor.

22. The hair braider of claim 19, wherein the spacer is formed by a first boss formed as part of the first part and a second boss that is formed as part of the second part, the first and second bosses mating together to securely attach the first and second parts to one another.

23. The hair braider of claim 19, wherein an uppermost concentric disc is free of notches and is in the form of a solid disc.

24. The hair braider of claim 1, wherein the first and second rotors are orientated in an opposite manner in the head.

25. The hair braider of claim 19, wherein the first part of the first rotor faces upright, while the second part of the second rotor faces upright.

26. The hair braider of claim 1, wherein the first rotor includes three openings in the form of notches formed in an outer edge thereof and the second rotor includes three openings in the form of notches formed in an outer edge thereof.

27. The hair braider of claim 26, wherein the first and second rotors at least partially overlap with one another so that during operation one notch of one rotor comes into registration with one notch of the other rotor in a center transfer position.

28. The hair braider of claim 1, wherein the mechanism includes a pivotable urging element that selectively contacts and urges the hair retaining member and transfer it from one rotor to the other rotor and a plurality of gears that cooperate with one of the first and second rotors or the urging element.

29. The hair braider of claim 28, wherein the plurality of gears associated with the mechanism include a pair of outer gears and a pair of inner gears, one outer gear being intermeshed with the first rotor and the other outer gear being intermeshed with the second rotor, the inner gears being intermeshed with the outer gears.

30. The hair braider of claim 29, wherein each of the outer gears includes a first toothed gear body that intermeshes with teeth of the first rotor and a second toothed gear body formed on the top face of the first toothed gear body, the second toothed gear body being intermeshed with teeth of the adjacent inner gear.

31. The hair braider of claim 29, wherein each inner gear includes an upstanding stop that is formed on an outer edge of the inner gear that selectively contacts the urging element to cause movement thereof as the inner gears rotate in turn with rotation of the first and second rotors.

32. The hair braider of claim 29, wherein the urging element is disposed above bodies of the inner gear so that it at least partially overlaps the bodies but is disposed so that it can be contacted by the stops such that rotation of the stops causes the urging element to be urged between a first position from which the urging element urges the hair retaining member from the first rotor to the right rotor and a second position from which the urging element urges the hair retaining member from the second rotor to the first rotor.

33. The hair braider of claim 28, wherein the urging element includes an elongated arm that is adapted to contact a hair retaining member that is disposed in one rotor notch that is located in a center position within the head, wherein in this center position, a complementary notch formed in the other rotor is aligned with the



one rotor notch to form an enclosed opening to permit transfer of the hair retaining member from one rotor to the other.

34. The hair braider of claim 1, wherein the plurality of gears include a plurality of idler gears that are arranged about and intermesh with teeth of one of the first and second rotors.

35. The hair braider of claim 34, wherein the plurality of idler gears includes at least ten idler gears with teeth of the five idler gears being intermeshed with the first rotor and teeth of the other five idler gears being intermeshed with the second rotor.

36. The hair braider of claim 35, wherein one of the idler gears is a first driven wheel that has teeth intermeshed with teeth of the drive gear and a second driven wheel that has teeth that intermeshes with the first driven wheel and with teeth of the second rotor, wherein the drive gear and the second driven wheel are rotated in a first direction, while the first driven wheel rotates in an opposite second direction, thereby resulting in the first rotor rotating in the first direction and the second rotor rotating in the second direction.

37. The hair braider of claim 1, wherein in an initial position, the left-to-right order of a first hair bundle (A), a second hair bundle (B) and a third bundle

of hair (C) is A, B, C with bundles A and B being journaled within the first rotor and as the rotors rotate in opposite direction, the hair retaining members are carried in respective circular orbits until the left-to-right order of the hair bundles becomes A, C, B with bundles B and C being journaled within the second rotor and the mechanism urges the bundle C to the first rotor and further rotation of the first and second rotors causes the left-to-right order of the hair bundles to become C, A, B with hair bundles C and A being journaled within the first rotor and whereupon further rotation of the rotors causes the mechanism to transfer the bundle A to the second rotor and further rotation of the rotors results in the left-to-right order of C, B, A which is a reverse order as compared to the initial position and further operation of the hair braider results in central and right hair bundles swapping positions and then the central and left hair bundles swapping positions.

38. A hair braider configured to perform a three-bundle plait or braid comprising:

a body having a handle and a head portion at one end of the handle;

a selectively actuatable drive source disposed within the body;

first and second rotatable rotors that are disposed within the head portion and are accessible through openings formed in the head portion, the first and second rotatable rotors being operatively coupled to the drive source through a plurality of gears such that the first and second rotors rotate in opposite directions when the drive source is actuated;

a plurality of hair retaining members that are received within openings formed in the first and second rotors and act to carry one bundle of hair, the first and second rotors at least partially overlap such that in a transfer location, one opening of one rotor overlaps one opening in the other rotor,

a mechanism for automatically transferring one hair retaining members from one rotor to the other rotor whenever the one hair retaining member is disposed in the transfer location; and

wherein a first bundle of hair is disposed in a hair retaining member and through one opening in the first rotor; a second bundle of hair is disposed in another hair retaining member and through another opening in the first rotor and a third bundle of hair is disposed in another hair retaining member and through one opening in the second rotor such that in a left-to-right order of the hair bundles there is a left hair bundle, a central hair bundle and a right hair bundle, wherein in the initial position, the first hair bundle is the left hair bundle, the second hair bundle is the central hair bundle and the third hair bundle is the right hair bundle, wherein the central hair bundle is always disposed in the transfer location; and rotation of the first and second rotors in opposite directions causes the three hair bundles to be carried in respective circular orbits and results in a number of successive hair bundle swaps being preformed as a result of the rotation of the rotors and action of the mechanism with the swaps being defined by successive swaps of the central hair bundle and one of the left and right hair bundles and then the central hair bundle with the other of the left and right hair bundles, thereby resulting in a three-bundle braid being formed.



further rotating the first and second rotors and activating the mechanism results in the hair bundles swapping position to form a three-bundle braid.

40. A method of braiding hair in a three-bundle plait or braid comprising the steps of:

providing a hair braider that includes:

first and second rotors that rotate in opposite directions under the action of a drive mechanism;

a plurality of hair retaining members that are received within openings formed in the first and second rotors and act to carry one bundle of hair, the first and second rotors at least partially overlap such that in a transfer location, one opening of one rotor overlaps one opening in the other rotor, and

a mechanism for automatically transferring one hair retaining members from one rotor to the other rotor whenever the one hair retaining member is disposed in the transfer location,

disposing a first bundle of hair in a hair retaining member and through one opening in the first rotor; a second bundle of hair in another hair retaining member and through another opening in the first rotor and a third bundle of hair in another hair retaining member and through one opening in the second rotor such that in a left-to-right order of the hair bundles there is a left hair bundle, a central hair bundle and a right hair bundle, wherein in the initial position, the first hair bundle is the left hair bundle, the second hair bundle is the central hair bundle and the third hair bundle is the

right hair bundle, wherein the central hair bundle is always disposed in the transfer location; and

rotating the first and second rotors in opposite directions with the three hair bundles being carried in respective circular orbits such that a number of successive hair bundle swaps are preformed as a result of the rotation of the rotors and action of the mechanism with the swaps being defined by successive swaps of the central hair bundle and one of the left and right hair bundles and then the central hair bundle with the other of the left and right hair bundles, thereby resulting in a three-bundle braid being formed.